(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number : **0 411 749 B1**

(12) # EUROPEAN PATENT SPECIFICATION

(45) Date of publication of patent specification : **13.12.95 Bulletin 95/50**

(51) Int. Cl.[6] : **G06F 3/023,** G06F 17/21

(21) Application number : **90305834.5**

(22) Date of filing : **29.05.90**

(54) **Information processing apparatus having a text editing display area**

(30) Priority : **29.05.89 JP 136481/89**
21.06.89 JP 160413/89

(43) Date of publication of application :
06.02.91 Bulletin 91/06

(45) Publication of the grant of the patent :
13.12.95 Bulletin 95/50

(84) Designated Contracting States :
DE GB

(56) References cited :
IBM TECHNICAL DISCLOSURE BULLETIN, vol. 28, no. 2, July 1985, page 856, New York, US; "Method to dynamically adjust a scrolling unit"

(73) Proprietor : **SHARP KABUSHIKI KAISHA**
22-22 Nagaike-cho
Abeno-ku
Osaka 545 (JP)

(72) Inventor : **Nagasawa, Hiroyuki**
3-1-28-401 Kataoka-dai,
Kanmaki-cho
Kitakatsuragi-gun, Nara-ken (JP)
Inventor : **Matsuo, Kazuhiko**
1861-14 Koizumi-cho
Yamaotokoriyama-shi, Nara-ken (JP)
Inventor : **Watanabe, Masanobu**
Tomi-danchi, 43-406,
4-3-1 Torimi-cho
Nara-shi, Nara-ken (JP)

(74) Representative : **Brown, Kenneth Richard et al**
R.G.C. Jenkins & Co.
26 Caxton Street
London SW1H 0RJ (GB)

EP 0 411 749 B1

Note : Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid (Art. 99(1) European patent convention).

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an information processing apparatus, such as a text processing apparatus, capable of inputting/outputting various information and editing text in various ways by specifying a portion of the input information according to an area it occupies on a display screen.

2. Description of the Prior Art

Conventionally, this type of text processing apparatus generally has an edit function of indicating an area to specify it as an editing unit. Specifying the area is usually performed by indicating two characters in text displayed on a screen. Specifically, a cursor is moved to a character at the head of the area and then an area indicating key is depressed to mark the beginning of the area. Then, the cursor is moved to a final character of the area and then the area indicating key is depressed again to mark the end of the area.

More specifically, as shown in an exemplary screen display in Fig. 7, one end of a desired area is indicated by a cursor 41 (see Fig. 7(A)) to mark the beginning of the area with an area beginning point marker 42 (see Fig. 7(B)), and thereafter, the cursor 41 is moved to the other end of the area on a screen (see Fig. 7(C)) to mark the end of the area with an area end point marker 43 (Fig. 7(D)). In this way, the area to be specified is marked so that text in the marked area can be edited through various processes, such as to move it, or delete it.

However, with a text processing apparatus having a small screen, in the case of specifying a large area in text, as a cursor is moved to the end of the area after marking the beginning of the area, the screen is often automatically scrolled, and this causes the beginning of the area to disappear from the screen, as shown in Fig. 7 (A) to (D). Thus, when the beginning of the area disappears from the screen, the position of the beginning of the area cannot be confirmed, and there arises the problem that it cannot be recognized how large the area is specified. To confirm the beginning of the area, the screen must be scrolled in the reverse direction to search for the position where the beginning of the area is marked, and this is a time consuming activity.

As a related art, a document processing device is known, which is provided with a plurality of display control circuits, a display screen displaying a plurality of images independently and a changeover means on a keyboard for selectively instructing the display control circuits to execute an image processing (see Unexamined Japanese Patent Publication No. 2878/1983).

SUMMARY OF THE INVENTION

In one aspect, an information processing apparatus according to the present invention comprises input means for inputting a character train and marking the beginning and end points of a desired area with respect to the characters displayed on a screen, inputted information storing means for storing the information inputted from the input means, display means having said screen for displaying on the screen the information stored in the inputted information storing means, first line information storing means for storing characters displayed in the first line of a said area when the area is specified by the input means, screen dividing means for allocating a fixed screen, not to be scrolled, to a predetermined position on the screen of the display means when the area is specified by the input means, and first line display means for reading the information in the first line from the first line information storing means and displaying it within the fixed screen.

Thus, the present invention overcomes the above-mentioned disadvantages of the prior art and provides an information processing apparatus in which the first line corresponding to the beginning of a specified-area is always displayed on a screen.

In another aspect, an information processing apparatus according to the present invention comprises a data display means for displaying on a display screen information input into the apparatus, designating means for designating a desired portion of the input information by marking the beginning and end points of said desired portion on the display screen, and display control means which is arranged to cause a section of said desired portion of the input information, including the beginning point, to be fixedly displayed in a fixed display region of the screen, not to be scrolled, while the information displayed in a main display region of the screen is scrolled to bring the end point onto the screen.

Preferably, the information processing apparatus further comprises beginning position storing means for storing the beginning position of the area specified by the input means with regard to the characters displayed on the screen of the display means, scroll means for scrolling the screen of the display means when instructed from the input means, and screen division control means for controlling the screen dividing means so that the fixed screen is allocated to the predetermined position on the screen by the screen dividing means when the beginning position of the area stored in the beginning position storing means disappears from the screen of the display means due to a scroll by the scroll means.

In accordance with the information processing

apparatus having a structure as stated above according to the present invention, when the cursor is moved to a character corresponding to the beginning of information in an area to be edited in the information inputted and displayed on the screen and instructions to specify the area are given from the input means, characters displayed in the first line in the information in the specified area are stored in the first line information storing means while a fixed screen is allocated to a predetermined position of the display means. As the fixed screen is allocated to the display means, the information in the first line is read from the first line information storing means and displayed within the fixed screen.

In accordance with the information processing apparatus further comprising the beginning position storing means, the scroll means and the screen division control means, the screen of the display means is scrolled by the scroll means, and when the beginning position of the area stored in the beginning position storing means disappears from the screen of the display means due to a scroll by the scroll means, a fixed screen is ellocated to e predetermined position of the display meens, end the charecters displeyed in the first line ere reed from the first line informetion storing means and displayed within the fixed screen.

Thus, when the beginning of the area is indiceted, the fixed screen by screen division is not ellocated on the screen, and thereafter, the screen is scrolled. When the beginning of the area disappeers from the screen, the fixed screen is allocated to display the beginning of the area. Hence, even when the end point of the aree is indicated, a range of the area can be sufficiently confirmed.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram showing a structure of a Japanese word processor of a first embodiment according to the present invention;

Fig. 2 is a flow chart for explaining the operation of the first embodiment;

Fig. 3 (1) to (4) are diagrams showing a display state of a first line display process in the first embodiment;

Fig. 4 is a block diagram showing a structure of a Japanese word processor of a second embodiment according to the present invention;

Fig. 5 is a diagram showing an exemplary screen division display in the second embodiment;

Fig. 6 is a flow chart showing the operation of the second embodiment; and

Fig. 7 (A) to (B) is a diagram showing a display state of a conventional area specifying process.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the present invention, a train of words in the first line preferably corresponds to a single line. A fixed screen is independently provided on a display screen not to be scrolled.

Input means in the present invention may be that which can input various information and specify an area of the inputted information by marking the beginning and end of the area; for example, a keyboard device, a tablet device and the like are used.

Display means may be that which has a screen capable of displaying one or more lines of various information and display on the screen the various information stored in the input information storing means, and it generally includes a display buffer composed of a RAM and a display controller composed of a microprocessor; for example, it may be a dot matrix type display device such es a CRT display device, an LC (liquid crystal) display device, an EL display device or the like. The first line information storing means is composed of a RAM, end specificelly, it mey be e cherecter buffer.

Input information storing means mey be thet which can store various information inputted from the input means, while beginning position storing means may be that which cen store the beginning position of the specified erea on the information displayed on the screen of the displey means; as the input informetion storing means and the beginning position storing means, mainly RAMs such as e core memory or an IC memory are used.

As screen dividing means, first line display means, scroll means and screen division control means, generally microprocessors ere conveniently used.

The present invention will now be described on the basis of embodiments shown in the drawings in detail. The present invention is not limited to the description herein.

Fig. 1 is a block diagram showing a structure of a Japanese word processor of a first embodiment according to the present invention. In Fig. 1, a keyboard 20 includes character input keys for inputting a character train to be kana (Japanese alphabet)/kanji (Chinese character) converted, a conversion key for executing a kana/kanji conversion, a cursor move key for moving a cursor, an area specifying key for specifying an area, an execution key for executing various processes and the like.

A kana/kanji conversion dictionary 21 stores many words (kana, kanji) corresponding to a character train. A character buffer 22 stores a word train in the first line of an area specified by the area specifying key. An edit information memory 23 composed of a ROM stores edition setting contents inputted from the keyboard 20, that is, edit information such as a

pitch between lines and a pitch between characters. A text memory 24 stores text inputted from the keyboard 20 and fixed through a conversion. A CRT 25 displays on a screen various information such as a character train of kana and words decided to be inputted so that the information can be scrolled. A cursor control unit 26 moves a cursor to the beginning and end points of an area to specify the area by manipulating cursor move keys on the keyboard 20.

A CPU 27 executes a kana/kanji conversion and a first line display process stated below, in accordance with a control program written in a program memory 28. Specifically, in an ordinary kana/kanji conversion, kana/kanji corresponding to a character train inputted from the keyboard 20 are read from the kana/kanji conversion dictionary 21. In a first line display process which is a characteristic of the first embodiment, a procedure mentioned below is performed; that is, at least one or more characters are indicated in text displayed by the CRT 25 to specify an area of the text. When the area is specified, a word train in the first line of the area is stored in the character buffer 22. At the same time, a fixed screen (a screen not to be scrolled) is allocated to a predetermined position of the screen. When the fixed screen is allocated, a word train in the first line is read from the character buffer 22 to be displayed within the fixed screen.

A screen dividing flag 29 is set "OFF" in an ordinary character input mode, while set "ON" when the fixed screen is allocated onto the screen of the CRT 25.

Now, the first line display process will be described in accordance with a flow chart shown in Fig. 2, on the premise that an ordinary process screen (character input mode) is invoked on the screen of the CRT 25.

When an ordinary edit process screen is displayed (step 30), a key input is waited (step 31). At this time, the cursor is moved to the head of an area to be edited and the area specifying key is depressed (step 32) to store an initial single line in the specified area in the character buffer 22 (step 33). Then, it is judged whether or not the screen dividing flag is set "ON" (step 34). . If the result of the judgment is NO, that is, if the fixed screen does not break onto the screen, a fixed screen corresponding to a single line of the text breaks onto the screen (step 35), the screen dividing flag is set "ON" (step 36), the first line is read from the character buffer 22 (step 37) and then the read first line is displayed within the fixed screen breaking onto the screen (step 38). As a result, the text displayed on the ordinary edit process screen is moved to a screen below the fixed screen and displayed. In other words, the line corresponding to the head of the area is displayed in two positions on the screen.

If the depressed key is not the area specifying key at step 32, it is judged whether or not a key related to edit such as a return key or a space key has been depressed (step 39). If the depressed key is the area specifying key, an edit process corresponding to the key related to edit is executed (step 40) and the processing is returned to step 31. If a negative result is produced at step 39, it is judged whether or not another key has been depressed (step 41). If a positive result is produced, the processing is returned to step 31, but if a negative result is produced, an error indication is displayed.

Fig. 3(1) shows a display state when the cursor is positioned at the head of the area. Fig. 3(2) shows a state in which the screen of the CRT 25 is divided into a fixed screen A and a screen B which can be scrolled, by depressing the area specifying key. Fig. 3(3) shows a state in which the cursor is moved across more than one line to invoke a screen C and the cursor is positioned in the end of the area. Fig. 3(4) shows a state in which the area specifying key is depressed to indicate the end point of the area. In this way, even if a range of the specified area covers more than one line and the screen is scrolled, the first line of the area to be specified always appears on the fixed screen A.

In this way, whenever the beginning point of the specified area is marked, the first line in which the beginning point of the area exists is displayed within the divided, fixed screen, whereby even if the specified area covers more than one line, the first line of the area can be confirmed on the same screen. Thus, the specified area can be accurately recognized, whereby an area specification can be accurately performed.

Next, a second embodiment according to the present invention will be described in detail with reference to Figs. 4 to 6.

In the second embodiment, unlike the first embodiment, only when the beginning point of an area is indicated and thereafter the beginning point of the area disappears from a screen due to a screen scroll, the screen is divided into two, a fixed screen is allocated to a predetermined position on the screen and information in the first line is displayed therein.

Fig. 4 is a block diagram showing a structure of a Japanese word processor of the second embodiment according to the present invention.

In Fig. 4, a keyboard 1 includes a kana key, a kana/kanji conversion key, a cursor move key for moving a cursor, an area specifying key for specifying an area and the like, and it is used for inputting pronunciation information on the basis of kana and an instruction to specify an area, to a main controller 2.

A main controller 2 is composed of a microprocessor, and executes various data processes stated below in accordance with a program stored in a program memory composed of a ROM.

A kana/kanji conversion dictionary composed of an inner memory such as a ROM, or an external mem-

ory such as a floppy disc or a magnetic disc stores many words including kanji along with their pronunciation information on the basis of kana.

A RAM 5 is provided with an input buffer 6, an area beginning point buffer 7 and an area end position buffer 8 therein.

An input buffer 6 stores data inputted from the keyboard 1, that is, a kana-character train, a kanji-kana combined phrase which is converted from the kana-character train by the kana/kanji conversion dictionary, and the like.

A CRT display device 9 can display various data.

A display controller 10 is composed of a display buffer including a RAM and a microprocessor, and it converts data stored in the input buffer 6, a cursor for giving instructions on an input position, the beginning point and end point marks of an area specified with the cursor and the like into a display image to display on a screen of a CRT display device 9.

The area beginning point buffer 7 of the RAM 5 stores the beginning point of the specified area with respect to the data displayed on the screen of the CRT display device 9 with its coordinates, while the area end point position buffer 8 stores the end point of the area with its coordinates.

The main controller 2 controls the input buffer 6 to store the data inputted from the keyboard 1, and when the keyboard 1 gives instructions of a kana/kanji conversion, it converts a kana-character train into a kanji and kana combined phrase through the kana/kanji conversion dictionary 4.

Data which can be displayed on the screen of the CRT display device 9 in the data stored in the input buffer 6 is extracted to be conveyed to the display controller 10.

The beginning point of an area including data displayed on the screen of the CRT display device 9 is located by a manipulation of the cursor move key on the keyboard 1, and when the area specifying key determines the position where the cursor currently lies as the beginning point of the area, the display controller 10 is controlled to mark the beginning point of the area in the cursor position on the screen of the CRT display device 9, and the position is stored in the area beginning point buffer 7 of the RAM 5.

Similar to the above, when the area specifying key determines the position where the cursor currently lies as the end point of the area, the end point of the area is marked in the cursor position on the screen of the CRT display device 9, and the position is stored in the area end point buffer 8 of the RAM 5.

Furthermore, the main controller 2, when it receives instructions to scroll the screen of the CRT display device 9, that is, when the cursor is moved outward from a screen frame of the CRT display device 9 by the cursor move key on the keyboard 1, controls the display controller 10 to scroll the entire screen in the reverse direction to the direction of the movement of the cursor.

It is always judged whether or not the beginning point of the area stored in the area beginning buffer 7 lies within the screen of the CRT display device 9. When the beginning point of the area stored in the area beginning point buffer 7 disappears from the screen of the CRT display device 9 due to the above-mentioned screen scroll, the screen of the CRT display device 9 is divided into two through a control of the display controller 10. On one of the divided screens, the beginning point of the area is kept displayed, while the other of the divided screens alone is scrolled.

Fig. 5 (A) to (D) is a diagram showing an exemplary display when the screen of the CRT display device 9 is divided.

As shown in Fig. 5 (A), when a kana-character train, for example, is stored in the input buffer 6, the kana-character train is displayed on the screen of the CRT display device 9, and a cursor 11 is displayed.

In this state, when the area specifying key is depressed, as shown in Fig. 5(B), an area beginning point 12 is marked in a position where the cursor 11 currently lies, and the cursor 11 moves to the right by a single column.

As shown in Fig. 5(C), when the cursor key is manipulated several times to move the cursor 11 to the lower part in the figure, the cursor 11 moves downward. Furthermore, when the manipulation is continued until a line where the area beginning point is marked disappears, as shown in Fig. 5(D), a screen boundary 13 is created to divide the screen into two; the upper screen is that which has a fixed display of the line marked with the area beginning point 12, while the lower screen alone is scrolled.

Now, the processing operation of the main controller 2 will be explained in conjunction with a flow chart in Fig. 6.

In this process, the input buffer 6 has already stored data, and part of the data is displayed on the screen of the CRT display device 9.

When a key input is performed (step 51), the main controller 2 judges what kind of key that is (step 52).

If it is found that the key is the area specifying key, it is further judged whether or not the area specifying key determines the beginning point of the area (step 53). If it determines the beginning point of the area, the position of the beginning point is stored in the area beginning point buffer 7 (step 54), and an area specifying mark indicating the beginning point of the area is displayed (step 55). If it does not specify the beginning point of the area, it is judged that the end point of the area is determined, an area specifying mark indicating the end of the area is displayed in a position where the cursor lies, and thereafter an area specifying process to define the area is performed (step 56).

At step 52, when the key is a cursor key, a move

process of the cursor is performed (step 57) to judge whether or not a screen scroll should be performed (step 58).

If it is found that the screen scroll is to be performed, it is judged whether or not the line to which an area specification is executed can be put in the screen (step 59). If it cannot be put in the screen, screens divided through an automatic screen division are displayed (step 60).

When the screen scroll is not performed at step 58 and when the line to which an area specification is executed can be put in the screen, the screen is not divided but an ordinary screen is displayed (step 61).

At step 52, if the key is another key other than the area specifying key and the cursor move key, other process corresponding to the key is performed.

When the beginning point of an area is determined but the beginning point cannot be put in the screen through a screen scroll, the screen is automatically divided to always display the beginning point of the area in one of the divided screens, whereby the end point of the area can be determined, confirming a range of the area.

Additionally, only when the beginning point of an area disappears from the screen through a screen scroll, the screen is divided, and hence the present invention is effective especially in an area specifying process in an information processing apparatus such as a Japanese word processor having a small screen.

The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the scope of the invention as defined by the appended claims.

There are described above novel features which the skilled man will appreciate give rise to advantages. These are each independent aspects of the invention to be covered by the present application, irrespective of whether or not they are included within the scope of the following claims.

Claims

1. An information processing apparatus comprising:
   input means (20;1) for inputting a character train and marking the beginning and end points of a desired area with respect to the characters displayed on a screen;
   inputted information storing means (24;6) for storing the information inputted from said input means;
   display means (25;9) having said screen for displaying on the screen the information stored in said inputted information storing means;
   characterised in comprising:
   first line information storing means (22;6) for storing characters displayed in the first line of a said area when the area is specified by said input means;
   screen dividing means (29,34,35,36;10, 59,60) for allocating a fixed screen, not to be scrolled, to a predetermined position on the screen of said display means when the area is specified by said input means; and
   first line display means (37,38;2) for reading the information in the first line from said first line information storing means and displaying it within the fixed screen.

2. An apparatus according to claim 1, further comprising:
   beginning position storing means (7) for storing the beginning position of the area specified by said input means (1) with regard to the characters displayed on the screen of said display means;
   scroll means (58) for scrolling the screen of said display means (9) when instructed from said input means; and
   screen divisIon control means (59,60) for controlling the screen dividing means so that the fixed screen is allocated to the predetermined position on the screen by said screen dividing means when the beginning position of the area stored in said beginning position storing means (7) disappears from the screen of said display means due to a scroll by said scroll means.

3. An information processing apparatus comprising a data display means for displaying on a display screen (25;9) information input into the apparatus, and designating means (20,26;1,7,8) for designating a desired portion of the input information by marking the beginning and end points of said desired portion on the display screen, characterised by display control means (27,29;2, 10) which is arranged to cause a section of said desired portion of the input information, including the beginning point, to be fixedly displayed in a fixed display region of the screen, not to be scrolled, while the information displayed in a main display region of the screen is scrolled to bring the end point onto the screen.

4. Apparatus according to claim 3, wherein said display control means (27, 29) is arranged to establish said fixed display region immediately upon selection by the operator of said beginning point.

5. Apparatus according to claim 3, wherein said display control means (2,10) is arranged to establish said fixed display region at the time when scrolling during a search for the end point would cause said beginning point to disappear from the screen.

Patentansprüche

1. Informationsverarbeitungsanordnung mit:
   - einer Eingabeeinrichtung (20; 1) zum Eingeben einer Zeichenkette und zum Markieren des Anfangs- und Endpunkts eines gewünschten Bereichs hinsichtlich der auf einem Schirm angezeigten Zeichen;
   - einer Eingabeinformation-Speichereinrichtung (24; 6) zum Einspeichern der über die Eingabeeinrichtung eingegebenen Information;
   - einer Anzeigeeinrichtung (25; 9) mit dem genannten Schirm, um auf dem Schirm die in der Eingabeinformation-Speichereinrichtung eingespeicherte Information darzustellen;

     gekennzeichnet durch:
   - eine Erstzeileninformation-Speichereinrichtung (22; 6) zum Einspeichern von in der ersten Zeile des Bereichs dargestellten Zeichen, wenn der Bereich durch die Eingabeeinrichtung spezifiziert wird;
   - eine Schirmunterteilungseinrichtung (29, 34, 35, 36; 10, 59, 60) zum Zuordnen eines unveränderlichen, nicht zu rollenden Schirms zu einer vorgegebenen Position auf dem Schirm der Anzeigeeinrichtung, wenn der Bereich durch die Eingabeeinrichtung spezifiziert ist; und
   - eine Erstzeile-Anzeigeeinrichtung (37, 38; 2) zum Lesen der Information in der ersten Zeile aus der Erstzeileinformation-Speichereinrichtung und zum Anzeigen derselben innerhalb des unveränderlichen Schirms.

2. Anordnung nach Anspruch 1, ferner mit:
   - einer Anfangsposition-Speichereinrichtung (7) zum Speichern der Anfangsposition des durch die Eingabeeinrichtung (1) spezifizierten Bereichs hinsichtlich der auf dem Schirm der Anzeigeeinrichtung dargestellten Zeichen;
   - einer Rolleinrichtung (58) zum Rollen des Schirms der Anzeigeeinrichtung (9), wenn eine Anweisung über die Eingabeeinrichtung erfolgt; und
   - einer Schirmunterteilungs-Steuereinrichtung (59, 60) zum Steuern der Schirmunterteilungseinrichtung so, daß der unveränderliche Schirm der vorgegebenen Position auf dem Schirm mittels der Schirmunterteilungseinrichtung zugeordnet wird, wenn die Anfangsposition des Bereichs, wie in der Anfangsposition-Speichereinrichtung (7) abgespeichert, wegen eines Rollvorgangs durch die Rolleinrichtung vom Schirm der Anzeigeeinrichtung verschwindet.

3. Informationsverarbeitungsanordnung mit einer Datenanzeigeeinrichtung zum Anzeigen von in die Anordnung eingegebener Information auf einem Anzeigeschirm (25; 9), und mit einer Spezifiziereinrichtung (20, 26; 1, 7, 8) zum Spezifizieren eines gewünschten Teils der Eingabeinformation durch Markieren des Anfangs- und Endpunkts des gewünschten Teils auf dem Anzeigeschirm, **gekennzeichnet durch** eine Anzeigesteuereinrichtung (27, 29; 2, 10), die so ausgebildet ist, daß sie bewirkt, daß ein Abschnitt des gewünschten Teils der Eingabeinformation, einschließlich dem Anfangspunkt, in einem unveränderlichen, nicht zu rollenden Anzeigebereich des Schirms unveränderlich angezeigt wird, während die im Hauptanzeigebereich des Schirms angezeigte Information durchgerollt wird, um den Endpunkt auf den Schirm zu bringen.

4. Anordnung nach Anspruch 3, bei der die Anzeigesteuereinrichtung (27, 29) so ausgebildet ist, daß sie den unveränderlichen Anzeigebereich unmittelbar bei Auswahl des Anfangspunkts durch die Bedienperson errichtet.

5. Anordnung nach Anspruch 3, bei der die Anzeigesteuereinrichtung (2, 10) so ausgebildet ist, daß sie den unveränderlichen Anzeigebereich zu dem Zeitpunkt errichtet, zu dem der Rollvorgang während einer Suche nach dem Endpunkt ein Verschwinden des Anfangspunkts vom Schirm hervorruft.

Revendications

1. Appareil de traitement d'informations comprenant:

   des moyens d'entrée (20; 1) destinés à fournir en entrée un train de caractères et à marquer des points initial et final d'une zone voulue par rapport aux caractères affichés sur un écran;

   des moyens de mémorisation d'informations fournies en entrée (24; 6) destinés à mémoriser les informations fournies en entrée à partir desdits moyens d'entrée;

   des moyens d'affichage (25; 9) comportant ledit écran pour afficher sur celui-ci les informations mémorisées dans lesdits moyens de mémorisation d'informations fournies en entrée;

   caractérisé en ce qu'il comprend :

   des moyens de mémorisation d'informations de première ligne (22; 6) pour mémoriser des caractères affichés sur la première ligne de ladite zone lorsque celle-ci est spécifiée par lesdits moyens d'entrée;

des moyens diviseurs d'écran (29, 34, 35, 36; 10, 59, 60) destinés à affecter un écran fixe, non destiné à être soumis à un défilement, à une position prédéterminée sur l'écran desdits moyens d'affichage lorsque la zone est spécifiée par lesdits moyens d'entrée; et

des moyens d'affichage de première ligne (37, 38; 2) destinés à lire les informations de la première ligne à partir desdits moyens de mémorisation d'informations de première ligne et à les afficher à l'intérieur de l'écran fixe.

2. Appareil selon la revendication 1, comprenant également :

des moyens de mémorisation de position initiale (7) destinés à mémoriser la position initiale de la zone spécifiée par lesdits moyens d'entrée (1) par rapport aux caractères affichés sur l'écran desdits moyens d'affichage;

des moyens de défilement (58) destinés à faire défiler l'écran desdits moyens d'affichage (9), lorsqu'ils en reçoivent l'instruction à partir desdits moyens d'entrée; et

des moyens de commande de division d'écran (59, 60) destinés à commander les moyens diviseurs d'écran afin que l'écran fixe soit affecté à la position prédéterminée sur l'écran par lesdits moyens diviseurs d'écran lorsque la position initiale de la zone mémorisée dans lesdits moyens de mémorisation de position initiale (7) disparaît de l'écran desdits moyens d'affichage du fait d'un défilement effectué par lesdits moyens de défilement.

3. Appareil de traitement d'informations comprenant un moyen d'affichage de données destiné à afficher sur un écran d'affichage (25; 9) des informations fournies en entrée à l'appareil, et des moyens de désignation (20, 26; 1, 7, 8) destinés à désigner une partie voulue des informations d'entrée en marquant les points initial et final de ladite partie voulue sur l'écran d'affichage, caractérisé par des moyens de commande d'affichage (27, 29; 2, 10) conçus pour provoquer un affichage fixe d'une portion de ladite partie voulue des informations d'entrée, comprenant le point initial, dans une zone d'affichage fixe de l'écran, non destinée à être soumise à un défilement, pendant que les informations affichées dans une partie d'affichage principale de l'écran sont soumises à un défilement pour amener le point final sur l'écran.

4. Appareil selon la revendication 3, dans lequel lesdits moyens de commande d'affichage (27, 29) sont conçus pour établir ladite zone d'affichage fixe dès la sélection par un opérateur dudit point initial.

5. Appareil selon la revendication 3, dans lequel lesdits moyens de commande d'affichage (2, 10) sont conçus pour établir ladite zone d'affichage fixe au moment où un défilement pendant une recherche du point final provoquerait la disparition dudit point initial de l'écran.

FIG. 1

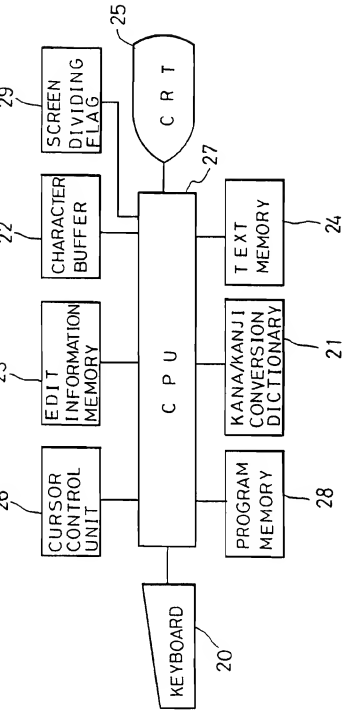

KEYBOARD
20
CURSOR CONTROL UNIT
26
EDIT INFORMATION MEMORY
23
CHARACTER BUFFER
22
SCREEN DIVIDING FLAG
29
C P U
27
C R T
25
PROGRAM MEMORY
28
KANA/KANJI CONVERSION DICTIONARY
21
TEXT MEMORY
24

FIG. 2

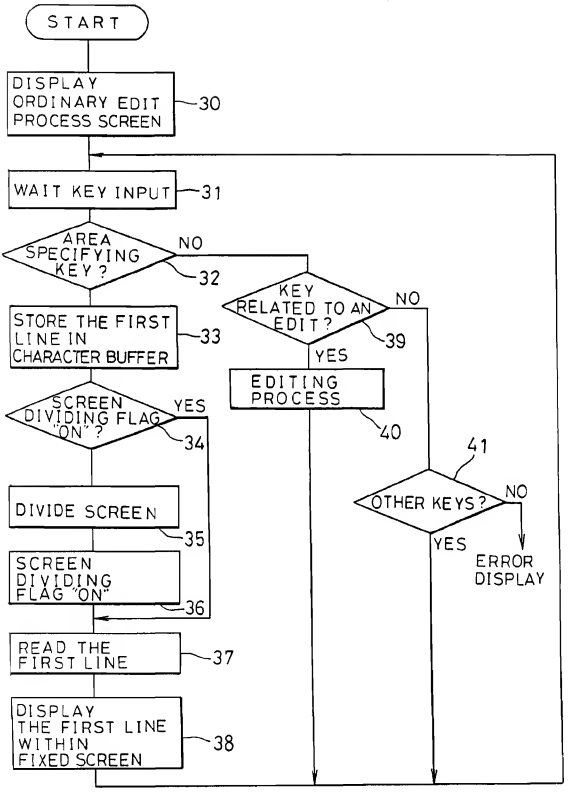

START
DISPLAY ORDINARY EDIT PROCESS SCREEN
30
WAIT KEY INPUT
31
AREA SPECIFYING KEY ?
NO
32
KEY RELATED TO AN EDIT ?
NO
39
YES
STORE THE FIRST LINE IN CHARACTER BUFFER
33
EDITING PROCESS
40
SCREEN DIVIDING FLAG "ON" ?
YES
34
41
OTHER KEYS ?
NO
YES
ERROR DISPLAY
DIVIDE SCREEN
35
SCREEN DIVIDING FLAG "ON"
36
READ THE FIRST LINE
37
DISPLAY THE FIRST LINE WITHIN FIXED SCREEN
38

FIG. 3

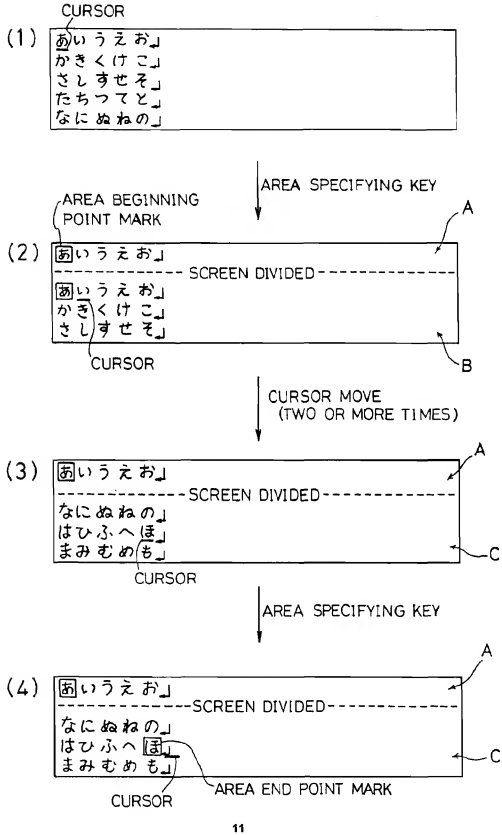

(1)
CURSOR
あいうえお」
かきくけこ」
さしすせそ」
たちつてと」
なにぬねの」
AREA SPECIFYING KEY
(2)
AREA BEGINNING POINT MARK
A
SCREEN DIVIDED
CURSOR
B
CURSOR MOVE (TWO OR MORE TIMES)
(3)
SCREEN DIVIDED
C
CURSOR
AREA SPECIFYING KEY
(4)
SCREEN DIVIDED
AREA END POINT MARK
CURSOR

FIG. 4

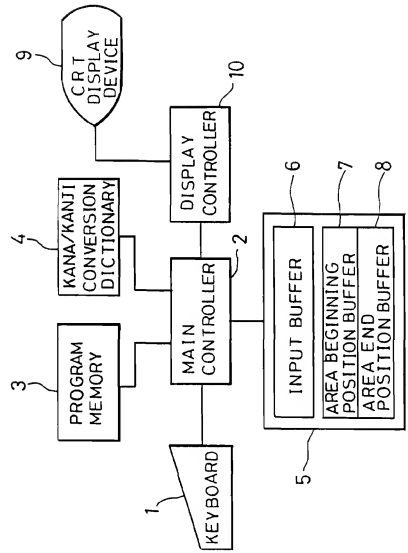
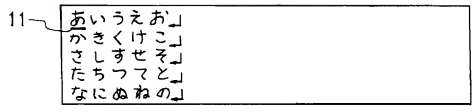
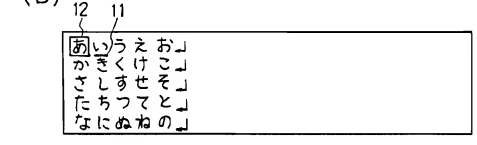

KEYBOARD
1
PROGRAM MEMORY
3
KANA/KANJI CONVERSION DICTIONARY
4
MAIN CONTROLLER
2
DISPLAY CONTROLLER
10
CRT DISPLAY DEVICE
9
INPUT BUFFER
6
AREA BEGINNING POSITION BUFFER
7
AREA END POSITION BUFFER
8
5

FIG. 5

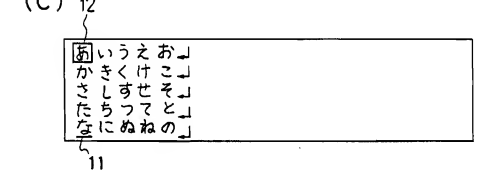
(A)


11
あいうえお
かきくけこ
さしすせそ
たちつてと
なにぬねの

(B)


12
11
あいうえお
かきくけこ
さしすせそ
たちつてと
なにぬねの

(C)


12
あいうえお
かきくけこ
さしすせそ
たちつてと
なにぬねの
11

(D)

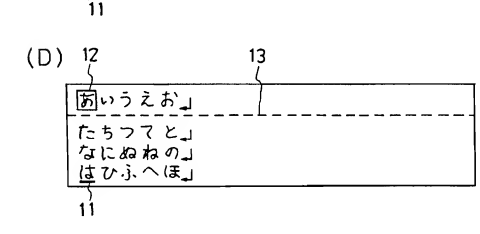
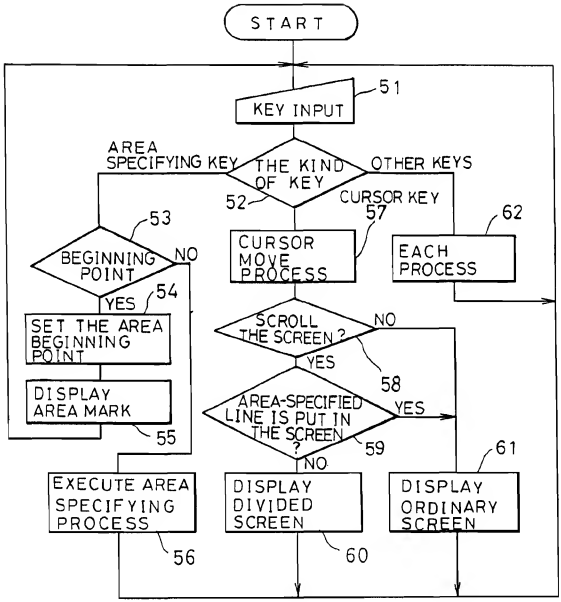

12
13
あいうえお
たちつてと
なにぬねの
はひふへほ
11

FIG. 6


START
KEY INPUT
51
THE KIND OF KEY
52
AREA SPECIFYING KEY
OTHER KEYS
CURSOR KEY
BEGINNING POINT
53
NO
YES
54
SET THE AREA BEGINNING POINT
DISPLAY AREA MARK
55
EXECUTE AREA SPECIFYING PROCESS
56
CURSOR MOVE PROCESS
57
SCROLL THE SCREEN?
NO
YES
58
AREA-SPECIFIED LINE IS PUT IN THE SCREEN ?
59
YES
NO
DISPLAY DIVIDED SCREEN
60
EACH PROCESS
62
DISPLAY ORDINARY SCREEN
61

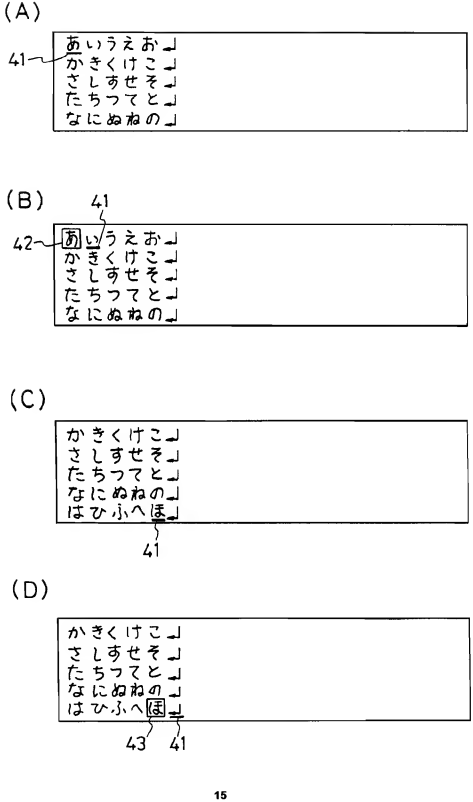



FIG. 7 (PRIOR ART)